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Neutrino charged pion production on water in extended phase space using Michel electron reconstruction in the T2K Near Detector

In addition to providing constraints for measurements of neutrino oscillations, the T2K off-axis near detector ND280 also measures a variety of neutrino interaction rates, in various exclusive channels.

I will present the status of an updated measurement of the muon neutrino charged current cross section with one positively charged pion in the final state ($\nu_\mu CC1\pi^+$) in ND280. The updated measurement will include greater statistics and access to extended regions of phase space. This is achieved with the inclusion of kinematic reconstruction of the charged pion from its subsequent decay chain to Michel electrons.

New or updated neutrino cross section measurements will be used to compare to our current interaction models, in order to reduce model-related systematics. This will be particularly important for next generation oscillation experiments.

Mini-abstract

Updated charged current single pion cross-section analysis, using Michel electron reconstruction

Experiment/Collaboration

T2K

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